INPUT IT Intelligence Services

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August 12, 1996

Mr. Tetsuya Yoshida
NTT Data
Card Group
Advanced Information Network Services

via fax 011-81-3-5546-8341
Email: yoshidaat@noa.nttdata.jp

Dear Mr. Yoshida:

Attached is INPUT's proposal and draft report outline for the study, "Trends in Value Circulation Management Systems".

We have followed your specifications, except that we have in some places offered alternate terminology which we believe may help to clarify the study. We will be happy to discuss the contents and the approach to the study at further length.

As noted in our proposal, INPUT has a significant amount of experience in this area and we look forward to assisting you in the important task.

Sincerely,

Thomas O'Flaherty
Vice President

Attachment

cc. INPUT KK.

PROPOSAL

TRENDS IN VALUE CIRCULATION MANAGEMENT SYSTEMS

Submitted to

NTT Data

August 12, 1996

Prepared by

INPUT

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TRENDS IN VALUE CIRCULATION MANAGEMENT SYSTEMS

I. OBJECTIVES

NTT Data wishes to understand the current and future status, trends, factors affecting growth and forecast sizes of value circulation management systems (VCMS).

II. SCOPE

The scope of the study is shown in the Preliminary Report Outline attached. INPUT applied its interpretation to NTT Data's Specifications of July 31, 1996 which took into account INPUT's understanding of current and expected developments in the these areas. INPUT will be happy to discuss with NTT Data modifications in its approach and deliverable.

III. METHODOLOGY AND CONDUCT OF THE WORK

INPUT will form a project team to carry out this project. The team will conduct the work for this project in the following way:

- The project will use published and unpublished materials used to support INPUT's prior program reports and custom research projects. (These are described in Section IV, below.)
- The knowledge and ideas of INPUT's staff will be a key point of added value, especially for assessing future developments and identifying new types of VCMS possibilities.
- INPUT will use its extensive contacts among vendors and users to learn more about pilot projects as well as, in some cases, plans that have not yet be publicly disclosed.
- INPUT will search and review published material as well.
- INPUT will interview (or, in many cases) re-interviewed VCMS providers (or those who may be considering VCMS services) to learn of specific activities that bear on this project.

The work will be completed within 6 weeks of the project being authorized by NTT Data.

IV. QUALIFICATIONS

INPUT is highly qualified to conduct this study. INPUT has a great deal of recent knowledge gained in performing research and analysis for its on-going subscription programs in

- Electronic Commerce
- Global Banking (especially its work in Electronic Banking)
- The Internet

INPUT has also conducted recent custom research studies in innovative types of network-based products and services, new developments in credit cards, forecast use of Smart Cards and assisting several major information services vendors in creating new types of products and services that will be offered in a network environment.

V. FEES

INPUT's professional fee for this project is $60,000. One-half of this fee ($30,000) is due and payable upon authorization. This fee includes all expenses. The remainder of the fee is due upon the submission of the report.

This fee will be reduced by 10% if NTT Data also authorizes INPUT's proposal on "Trends in Card-Related Network Security".

This proposal will remain valid for thirty days, unless extended in writing.

VI. AUTHORIZATION

To authorize the project as specified, please sign and return one copy of this proposal, along with the initial fee. Upon acceptance by INPUT, a countersigned copy of the proposal will be returned to.

AUTHORIZED BY: NTT DATA	ACCEPTED BY: INPUT
Name	Name
Title	Title
Date	Date

Preliminary Report Outline

TRENDS IN VALUE CIRCULATION MANAGEMENT SYSTEMS

A. THE STATUS OF CURRENT VALUE CIRCULATION MANAGEMENT SYSTEMS (VCMS)

(1) Current Status

1. Current types of VCMS outside of Japan

    a. Business uses (See Exhibit 1 for a preliminary list of potential VCMS; not all of these potential uses will be currently used or have announced plans. INPUT and NTT Data will agree on a final list by the second week of the study.)

    b. General status, broken out by

    - Currently operational
    - Pilot
    - Announced plans

    c. Current market size

    - Volume of underlying business
    - Approximate business for VCMS suppliers

(2) Analysis of factors driving market change. This will include analysis of

- Economic benefits
    - To VCMS operators
    - VCMS customers
- Convenience
- Public policy/government

Note: Factors may be either positive or negative (or a combination) concerning impacts on use of VCMS and the market for VCMS.

B. IDENTIFICATION OF FUTURE DIRECTIONS OF VCMS

This section will review the assumptions or methods of classifying VCMSs. NTT Data's Specification divided VCMS into

- VCMS with "individual" values, for example, where the management of value takes place with the value stored on a card.
- VCMS where there were linkages between different VCMS where there was shared management or exchanges of value. In these cases, at least part of the management of value would take place within a networked computer system and the card would be used primarily for identification.

INPUT agrees that this kind of classification may be very useful in understanding current and future developments in VCMS.

However, INPUT believes that other classification systems will emerge during the analysis for the study. For example, the following classification may be equally, or more, useful:

- Simple VCMS (interaction between a single VCMS manager and its customer). This could include cases where:
    - Value is only stored on the card
    - Value is stored primarily on the card (but with central knowledge and control)
    - Value is stored primarily in the computer system, but subsets are stored on cards.

- Complex VCMS where there are interactions between multiple VCMS managers and a customer. Here, INPUT would expect cases to include
    - Value is stored primarily on the card (but with central knowledge and control)
    - Value is stored primarily in the computer system, but subsets are stored on cards.

INPUT and NTT Data will agree on a classification approach by the third week of the study.

INPUT will perform the following analysis for this section of the work:

(1) Classify the VCMS in Exhibit 1 into the categories (or similar, more descriptive) categories.

(2) Description and analysis the advanced precedents for VCMS outside of Japan. (Note: This study will not include developments in Japan.)

C. FORECAST OF DEVELOPMENTS IN VCMS

This section will take the material developed in Section D, above, and forecast developments. Forecasts will include following:

- Scenarios will be developed that will cover major developments which may occur that will affect the acceptance and use of major types of VCMS. The analysis will apply probabilities, where appropriate.
- The time horizon will be 10 years.
- All the applications in Exhibit 1 will be assessed (although INPUT may conclude that some of these potential uses of VCMS will not in fact take place in the next 10 years).
- Dollar values and growth rates

INPUT will investigate the intentions of users through research conducted with the major issuers of value and those that are (or may) circulate value.

INPUT will assess the trends outside of Japan.

These analysis and forecasts will be divided between the major classifications developed in "B", above. That is

- "Individual value" (or "simple VCMS")
- "Shared management/exchanges of value" (or "complex VCMS")

D. SUMMARY AND CONCLUSIONS

The summary will contain the following

- The implementation probabilities for different types of VCMS
- Time frames of implementations (with a 10 year time horizon)
- Forecast market size for each type of VCMS
- Classification and sizing of business uses (that is, from the list in Exhibit 1)

Exhibit 1

POTENTIAL VALUE CIRCULATION MANAGEMENT SYSTEMS

(For Discussion; May Be Modified After Analysis; Examples Are Not Necessarily Exhaustive)

1. Transactions for goods and services: Physical interactions ("real" transactions)

    a. Large purchases

    - As substitution for credit transactions
    - As substitute for cash

    b. Small purchases

    - As substitution for credit transactions
    - As substitute for cash

2. Transactions for goods and services: Network interactions ("virtual" transactions)

    a. Large purchases

    - As substitution for credit transactions
    - As substitute for off-line transactions

    b. Small purchases

    - As substitution for credit transactions
    - As substitute for off-line transactions

    c. Very small purchases (e.g., metering for infotainment)

3. Transportation: Passengers
    a. Reserved travel
    - Corporate travel
    - Personal travel
        - Business
        - Leisure
    b. Unreserved travel
    - Corporate travel
    - Personal travel
        - Business
        - Leisure
4. Vehicles (Transportation)
    a. Tolls (current/facilities)
    b. Congestion control
5. Vehicles (Economic)
    a. Insurance
    b. Accidents
    c. Identification/theft prevention
6. Health
    a. History
    b. Insurance

7. Government Services
    a. Identity
    b. Voting
    c. Social benefits
    d. Criminal justice
8. High volume specialized services (Note: Fraud a special issue)
    a. Telephone cards
    b. Gaming
9. Economic exchange
    a. Pollution rights
    b. Congestion rights
10. Product warranty
    a. Identification
    b. Service record